

**THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF PUERTO RICO**

In Re:

THE FINANCIAL OVERSIGHT AND
MANAGEMENT BOARD FOR PUERTO RICO,

as representative of

THE COMMONWEALTH OF PUERTO RICO *et al.*,

Debtors.¹

PROMESA Title III

Case No. 17 BK 3283-LTS

(Jointly Administered)

In Re:

THE FINANCIAL OVERSIGHT AND
MANAGEMENT BOARD FOR PUERTO RICO,

as representative of

THE COMMONWEALTH OF PUERTO RICO *et al.*,

Debtors.

PROMESA Title III

Case No. 17 BK 4780-LTS

(This filing relates only to
Case No. 17 BK 4780-LTS)

EXPERT DECLARATION OF DAVID I. TABAK, PH.D.

¹ The Debtors in these Title III Cases, along with each Debtor's respective Title III case number and the last four (4) digits of each Debtor's federal tax identification number, as applicable, are the (i) Commonwealth of Puerto Rico (Bankruptcy Case No. 17 BK 3283- LTS) (Last Four Digits of Federal Tax ID: 3481); (ii) Puerto Rico Sales Tax Financing Corporation ("COFINA") (Bankruptcy Case No. 17 BK 3284-LTS) (Last Four Digits of Federal Tax ID: 8474); (iii) Puerto Rico Highways and Transportation Authority ("HTA") (Bankruptcy Case No. 17 BK 3567-LTS) (Last Four Digits of Federal Tax ID: 3808); (iv) Employees Retirement System of the Government of the Commonwealth of Puerto Rico ("ERS") (Bankruptcy Case No. 17 BK 3566-LTS) (Last Four Digits of Federal Tax ID: 9686); and (v) Puerto Rico Electric Power Authority ("PREPA") (Bankruptcy Case No. 17 BK 4780-LTS) (Last Four Digits of Federal Tax ID: 3747).

I, DAVID I. TABAK, PURSUANT TO 28 U.S.C. § 1746, DECLARE AND STATE AS FOLLOWS:

I. SCOPE OF ANALYSIS AND SUMMARY OF FINDINGS

1. I have been retained by Counsel for National Public Finance Guarantee Corporation, Assured Guaranty Corp., Assured Guaranty Municipal Corp., and Syncora Guarantee, Inc. (collectively, “Movants”) in the PROMESA Title III proceedings before the United States District Court for the District of Puerto Rico. I submit this declaration in connection with the Movants’ *Motion for Relief from the Automatic Stay to Allow Movants to Enforce Their Statutory Right to Have a Receiver Appointed*. It is my understanding that the Movants together insure approximately \$2.3 billion of the approximately \$8.3 billion in total aggregate amount of principal value with respect to all outstanding bonds issued by the Puerto Rico Electric Power Authority (“PREPA”).

2. I have been asked by Counsel for the Movants to assess the present value of the benefits that would accrue to PREPA stakeholders if PREPA were to be operated under independent and professional management free from politicization that could achieve the goals set out in the Puerto Rico Electric Power Authority Fiscal Plan dated August 1, 2018 (“Fiscal Plan”). I understand that Jeff Makhholm and Sandra Ringelstetter-Ennis, experts for Movants, have offered their opinions that implementation of the economic and other reforms in the Fiscal Plan would be more likely achieved, or would only be possible, if an independent receiver is appointed to operate PREPA. Therefore, the results of my analysis calculate the difference between the value of such management and the current management.

3. My analysis, discussed in more detail below, finds that, as of the date at which the expectation of a successful implementation of initiatives in the Fiscal Plan begins, a total present value of at least \$9 billion in benefits (i.e., higher revenues and lower costs) would be achieved if the Fiscal Plan, including the detailed initiatives, are implemented as contemplated in the Fiscal Plan. These benefits are split between \$2.8 billion for

Operational Initiatives (as defined in the Fiscal Plan) and \$6.5 billion for Transformation Plan effects (also defined in the Fiscal Plan).² These present-value figures could be even higher, exceeding \$20 billion, if one accounts for how a successful implementation of the Fiscal Plan initiatives would reduce the risk of PREPA's operations, thereby lowering the discount rate applied to future benefits. That is, as future dollars are discounted by less, they become worth more today.³

4. My analysis also shows the value of the benefits if only some of the Fiscal Plan initiatives are achieved. In addition, I analyze the effect of delaying the Transformation Plan by an additional eighteen months. Even under this scenario, the present value of benefits of the Transformation Plan alone are \$5.4 billion, while the present value of the benefits from the Operational Initiatives remain at \$2.8 billion, in both cases still valued using a discount rate that does not account for (i.e., increase the value of future benefits due to) reductions in PREPA's risk if the initiatives in the Fiscal Plan are achieved.

II. QUALIFICATIONS AND COMPENSATION

5. I received Bachelor's degrees in Physics and in Economics from the Massachusetts Institute of Technology and a Master's degree and a Ph.D. in Economics from Harvard University. I have appeared as an expert in federal district courts; state trial courts; bankruptcy court; and in arbitration forums, including the National Association of Securities Dealers, the International Chamber of Commerce International Court of Arbitration, and the American Arbitration Association. I have published in my fields of expertise on subjects such as valuation and financial analysis.

² I do not provide any independent opinion about the validity of the assumptions in the Fiscal Plan.

³ For example, at a discount rate of 10%, \$100 today is worth \$110 next year, or, equivalently, \$110 next year is worth \$100 today. If the discount rate is only 5%, then \$110 next year would be worth approximately \$105 today.

6. I am currently employed as a Managing Director at National Economic Research Associates (“NERA”). NERA was established in 1961 and now employs approximately 500 people in over twenty offices worldwide. NERA provides consulting for economic matters to parties for their internal use, to parties in litigation, and to governmental and regulatory authorities. I have worked at NERA for over twenty years in NERA’s securities and finance practice. My work entails providing analyses for parties in litigation and consulting for parties in non-litigation settings such as providing valuations for companies. I have served as a speaker at events providing continuing legal education (CLE) credits for attorneys, as a speaker at events providing continuing professional education (CPE) credits for appraisers, and at academic conferences on areas related to securities litigation. I was one of the original panelists in *BV Q&A Update*, a forum in which appraisers sent questions on valuation topics to panelists to receive advice from panelists.

7. My curriculum vitae, which sets forth in further detail my publications and prior testimony experience, is attached to this declaration as Exhibit 1.

8. NERA is being compensated for out-of-pocket costs and on an hourly basis at our usual rates for time. My billing rate is \$950 per hour. I have been assisted by a number of individuals at NERA working under my direction who are billing at their standard rates. NERA’s compensation is entirely unrelated to the substance of the opinions contained in this declaration or on the outcome of this or any other related litigation.

III. MATERIALS CONSIDERED

9. Materials considered for the purposes of this declaration are listed in Exhibit 2.

IV. PREPA'S FISCAL PLAN ENVISIONS VARIOUS COST-SAVING AND REVENUE-ENHANCING INITIATIVES

10. PREPA's Fiscal Plan states that "rates under 20c by 2023 could be achieved through a complete power sector transformation[.]"⁴ While the Fiscal Plan discusses the effects of initiatives in terms of rates, the initiatives really reflect cost savings and revenue increases (through more effective collections). My analysis does not consider which stakeholders receive the benefits of these actions.

11. The benefits that PREPA assumes could be achieved under the power sector transformation are grouped into four categories: CILT⁵ and subsidies, labor and operations, cost of non-generation capital expenditures, and purchased power.⁶ I use PREPA's calculations as inputs to my valuation model. I have not independently verified the data underlying the Fiscal Plan.

V. PRESENT VALUE CALCULATION INPUTS

12. The present value of the proposed initiatives (i.e., the value today of all of the future cash flows) can be determined through a discounted cash flow analysis ("DCF"). Future cash flows (i.e., cost savings and revenue increases) are discounted back to the valuation date at a discount rate that reflects the time value of money and the riskiness of PREPA's cash flows.

13. As discussed above, the anticipated cash flows themselves come from PREPA's own Fiscal Plan. Specifically, the values for Operational Initiatives are given in millions of dollars on pages 82 and 114-118 of the Fiscal Plan, while the values for

⁴ Fiscal Plan, p. 43, capitalization altered.

⁵ CILT stands for Contributions In Lieu of Taxes, or arrangements in which PREPA provides municipalities with power in exchange for reductions or elimination of municipal taxes.

⁶ Fiscal Plan, p. 43.

Transformation Plan effects are given in cents per kWh (kilowatt-hour) on page 43 of the Fiscal Plan. Exhibit 3a to this declaration repeats the effects of achieving the operational initiatives, which are converted into cents per kilowatt hour in Exhibit 3b. Exhibit 3c shows the figures for the Transformation Plan effects in cents per kilowatt-hours, which are then converted to millions of dollars. Because each fiscal year runs from July 1 of one year to June 30 of the next, the values for fiscal year 2019 (ending on June 30, 2019) are cut in half to represent half of a fiscal year, which more closely approximates what one would expect for the first half of a calendar year. My analysis begins halfway through the first year (fiscal year 2019) of the Fiscal Plan (i.e., January 1, 2019), which corresponds to the second half of Fiscal Year 1 in the exhibits to this declaration. All of the values in this declaration are valued as of the beginning of an anticipated successful implementation of the initiatives in the Fiscal Plan.

14. As part of this analysis, I project the cash-flow benefits from the initiatives in the five-year period given in the Fiscal Plan further out in time. It is my understanding that the many of the cash-flow benefits represent permanent changes in PREPA's operations. For example, changes in PREPA's labor structure would be assumed to continue indefinitely rather than be reversed.⁷ I therefore complete the cash-flow inputs to the DCF with what is known as a terminal value, or an estimate of the long-term position of PREPA after the initiatives have been implemented. This terminal value is based on the growth savings achieved in the fifth year of the initiatives in the Fiscal Plan.

15. The second input for the DCF analysis is the discount rate. I consider two scenarios for the relevant discount rate. The first is highly conservative (i.e., results in a low present value) and uses an estimate of PREPA's current discount rate reflecting

⁷ Technically, the changes would not be expected to last forever, but would be replaced over time as the utility evolves. However, the same is true of other municipalities in Puerto Rico and their discount rates, used as an estimate of PREPA's discount rate under a successful implementation of the initiatives in the Fiscal Plan, would also reflect the expectation that operations would evolve, including the risks of better or worse operational results in the future.

Movants' argument that PREPA is a mismanaged utility. In Exhibit 4a, I show PREPA's ten largest non-insured market-traded bonds by outstanding balance. This exhibit shows that the weighted-average discount rate of these bonds was 14.067% as of July 30, 2018 (the last close before a preliminary deal on restructuring the bonds) and 11.023% as of January 2, 2019. To be conservative, I use the higher discount rate (which results in a lower present value) in my calculations. As PREPA is currently in Title III proceedings and has little or no equity value (i.e., after payment of outstanding debt in whole or in part, there is little or no value for any residual claimant),⁸ this is a good approximation of the discount rate for the utility as a whole.

16. A second scenario for the relevant discount rate is a rate similar to that of municipal bonds in Puerto Rico. I obtain this rate from the S&P Municipal Bond Puerto Rico Index, and find a discount rate of 5.78% as of July 30, 2018 and of 5.70% as of January 2, 2019. See Exhibit 4b for a list of several municipal bond indices, showing that the rates for Puerto Rican bonds are higher than those for utility indices, public power indices, and BB+ and lower municipal bonds. I also note that the most current posting of the "Cost of Capital by Sector (US)" by New York University professor Aswath Damodaran⁹ lists the total cost of capital for the "Utility (General)" category as 3.61%, with even the cost of equity being only 4.27%.¹⁰

17. The two discount rates I use provide the reasonable upper bounds on the proper discount rate for valuing the cash-flow benefits from implementing the initiatives in the Fiscal Plan. The more successful the implementation of these initiatives is, the closer the

⁸ The non-zero values of the uninsured PREPA debt shown in Exhibit 4a, generally corresponding to prices around \$60 per \$100 of debt outstanding, indicate that the market expects that PREPA will pay off a large portion of its debt.

⁹ Available at http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/wacc.htm, accessed on February 17, 2019.

¹⁰ Professor Damodaran's figures tax-adjust the cost of debt. To be conservative, in my analysis, I do not tax-adjust the cost of debt (which would lower that cost and raise the present value of cash flows).

appropriate discount rate should be to that of well-managed U.S. utilities. Conversely, the less successful the implementation is, the closer the discount rate would be to PREPA's current discount rate.¹¹

18. The final input for the DCF is the terminal value, or the value of PREPA after the final forecasted year (i.e., a value that accounts for future cash flows beyond the explicit forecast). This is typically accomplished by applying a terminal growth rate to the final year of the projections and employing a formula to calculate the present value of the future cash flows based on that growth rate. I derive the terminal growth rate as an estimate of the long-run growth rate of the Puerto Rican economy, measured as the growth in nominal gross domestic product ("GDP") or gross national product ("GNP").¹² Exhibit 5 lists several sources of projections for the long-run growth rate of the Puerto Rican economy. Each of these growth rates is positive. The GDP estimates show a median growth rate of 1.00% and a mean growth rate of 0.99%, while the GNP estimates show a median growth rate of 2.13% and a mean growth rate of 2.37%. To be highly conservative, I assume a long-term growth rate of 0.0%, below the lowest of the values in Exhibit 5. This choice results in a conservative (or low) estimate of cash flows beyond the explicit projections in the Fiscal Plan and lowers the ultimate estimate of the benefits of accomplishing the Fiscal Plan initiatives.

¹¹ PREPA's current discount rate may be temporarily higher given the additional legal uncertainties inherent in any legal restructuring proceeding. That is, the uncertainty of the outcome of the legal process adds additional risk to the value of PREPA, which may affect the expectation of future cash flows and the present value of those cash flows.

¹² Nominal figures are in "current dollars," meaning that figures are in values measured at the time and not adjusted for inflation. As long as the discount rate is matched to the cash flows and growth rates (i.e., a nominal discount rate for cash flows in nominal dollars and a "real" or inflation-adjusted growth rate for real dollars), the results of a DCF are independent of which set of figures is used.

VI. PRESENT VALUE CALCULATION RESULTS

19. Exhibits 6a and 6b show the results of the present-value analysis. Each exhibit displays several rows that show the expected benefits of one set of Fiscal Plan initiatives for each year of the five-year plan and for the terminal value. The penultimate column shows the value of the cash flows achieved over the first eighteen months for each initiative, which I understand the Fiscal Plan indicates to be a reasonable estimate of the amount of time that would be necessary to achieve a transformation of Puerto Rico's energy sector.¹³ The final column of each row shows the total present value of that initiative (i.e., including the first eighteen months). For each of these final columns, the discount rate used is the weighted average yield on PREPA's bonds before a preliminary restructuring deal was announced, as shown in Exhibit 4a, and the yield on Puerto Rican municipal bonds shown in Exhibit 4b.

20. Each exhibit shows the sum of the present values for three categories of initiatives, both for the first eighteen months and in total. First, the exhibits show the value of the operational initiatives assumed to exist in the "steady-state" forecast in the Fiscal Plan, which I understand Movants argue may not be achieved without an independent receiver.¹⁴ Second, each exhibit shows the value of the additional initiatives as part of the Transformation Plan beyond the steady-state forecast reflecting the Operational Initiatives. Third, each exhibit shows the sum of these two sets of initiatives, coming to over \$9 billion in Exhibit 6a and over \$23 billion in Exhibit 6b.

21. As an alternative to simply examining the first eighteen months of the cash flows, I also consider the possibility that the entire Transformation Plan will be pushed eighteen months into the future, essentially assuming an eighteen-month delay in implementing

¹³ See also p. 6 of the Fiscal Plan: "PREPA's amended and restated Fiscal Plan is premised on a transformation of Puerto Rico's energy sector in a transaction that will take at least 18 months."

¹⁴ The steady-state forecast represents what PREPA hopes to achieve with the implementation of the operational initiatives, not the current state of affairs. See p. 36 of the Fiscal Plan.

the Transformation Plan. Exhibit 7 shows the revised undiscounted cash flows under this scenario. In particular, the cash flows in the section on Transformation Plan effects have been pushed out by an additional eighteen months. For example, the fiscal year 2022 figures would be calculated to represent half of the fiscal year 2020 figures and half of the fiscal year 2021 figures. In other words, the 2022 figures represent the second half of 2020 plus the first half of 2021, which are eighteen months before the first and second halves of fiscal year 2022, respectively.¹⁵ Due to the additional time until the beginning of implementation of these initiatives, the exhibits are denominated in terms of the second half of Fiscal Year 1, Fiscal Year 2, Fiscal Year 3, Fiscal Year 4, and Fiscal Year 5. Exhibits 8a and 8b then show the discounted values of the figures in Exhibit 7, using the same two discount rates used in Exhibits 6a and 6b, respectively. The benefits exceed \$8 billion in Exhibit 8a and exceed \$21 billion in Exhibit 8b.

22. I take no position on the likelihood of success of any particular Fiscal Plan initiative. However, given my analyses, if one did wish to consider scenarios in which some but not all initiatives were successful, it would be straightforward to add the relevant rows from Exhibit 6a, 6b, 8a, or 8b.

VII. CONCLUSION

23. The benefits identified in the Fiscal Plan Initiatives are worth over \$9 billion in present-value terms. Even under a more restrictive assumption in which the

¹⁵ For simplicity, I assume that the values in each year can be split evenly by each half year. A more complicated analysis could, in a growth scenario, estimate FY 2020 cash flows by increasing the figures for 2018 (because they are from the second half of 2018) and decreasing the figures for 2019 (because they are from the first half of 2019). As these two changes go in opposite directions, the net effect would be small. I also note that I do not increase the figures for inflation over the eighteen-month delay period, which would increase the figures in Exhibits 6a and 6b. As the eighteen-month period is an estimate and my goal is to provide a general idea of the magnitude of these effects, I believe that the benefits of this simpler presentation outweigh the costs of making small adjustments to what are necessarily estimates of future cash flows.

Transformation Plan is delayed for an additional eighteen months, the benefits still exceed \$8 billion. Moreover, if one wished to consider the benefits of the risk reduction that would likely accompany a successful implementation of the initiatives in the Fiscal Plan, the discount rate faced by PREPA would be lowered as a result, and, consequently, the present value of the benefits would increase to well over \$20 billion with or without the eighteen-month delay. As noted above, it is my understanding other experts for Movants have given their opinion that these benefits are more likely if not only possible if an independent receiver is appointed to operate PREPA.

I reserve the right to modify or supplement any of my opinions in this declaration in light of any new information, including submissions by any other experts, that becomes available to me.

I declare under penalty of perjury that the foregoing is true and correct.



David I. Tabak
February 25, 2019



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EXHIBIT 1

DAVID I. TABAK

MANAGING DIRECTOR

Dr. Tabak earned his Ph.D. and M.A. degrees in Economics from Harvard University and his B.S. in Economics and B.S. in Physics from the Massachusetts Institute of Technology. While at Harvard, Dr. Tabak participated in teaching courses in micro- and macroeconomics and American economic policy at the undergraduate and graduate levels and in the creation of an undergraduate textbook and accompanying software package.

Dr. Tabak has appeared as an expert in state, federal, Delaware Chancery, and bankruptcy courts, and before arbitration panels, including the National Association of Securities Dealers, the American Arbitration Association, the International Dispute Resolution Centre, and the International Chamber of Commerce International Court of Arbitration. He has published in his areas of expertise in forums such as *St. John's Law Review* and *Shannon Pratt's Business Valuation Update*, and has published peer-reviewed articles in *Litigation Economics Review* and the *Journal of Forensic Economics*. Dr. Tabak is also the author of book chapters and has served as a member of *BV Q&A Update's* expert author panel and as a referee for peer-reviewed journals. His publications have covered topics such as commercial disputes, economic analysis of market efficiency, valuation discounts for lack of marketability, and the application of statistics in litigation analyses. Dr. Tabak has been an invited presenter at the Securities and Exchange Commission and has spoken at forums that provide continuing legal education credits or continuing professional education credits for accountants and valuation professionals.

Dr. Tabak has been retained as an expert to address issues including allegations of valuations, contract disputes, commercial damages, and disputes between brokers and customers. His non-litigation work has included developing a risk-scoring model for a reinsurance company, assisting financial institutions in new product development, analysis of potential insider trading for a financial institution, and interpretation of statistical analyses of treatment effectiveness for a program for at-risk youth.

Education

Harvard University

Ph.D., Economics, 1996

M.A., Economics, 1992

Massachusetts Institute of Technology

B.S., Economics, 1990

B.S., Physics, 1990

Professional Experience

NERA Economic Consulting

2005- *Managing Director (f/k/a Senior Vice President)*

Provide written and oral testimony. Conduct and supervise economic analyses, with a focus on securities litigation and valuation cases.

2001-2005 *Vice President*

1998-2001 *Senior Consultant*

1996-1998 *Senior Analyst*

Harvard University

1991-1996 *Teaching Fellow in Economics*

Participated in teaching various courses from introductory principles of economics to graduate macroeconomics. Ran coursewide tutorial program for the largest class at Harvard for two academic years, with a staff of over fifty part-time employees.

Worth Publishers

1991, 1993 *Research Assistant/Independent Contractor*

Worked on data collection, software analysis, and creation of a problem bank for an educational economics software package.

National Bureau of Economic Research

1991 *Research Assistant*

Performed data collection and econometric analysis for a project on comparisons of international growth rates.

Honors and Professional Activities

Member, American Economic Association, 1993-present

Referee, *Journal of Forensic Economics*, 2005, 2006, 2008, 2009, 2011, 2012, 2015

Referee, *Litigation Economics Review*, 2002, 2003, 2004

William M. Mercer Securities Corporation, Registered Representative, Series 7 and 63, 2000 - 2002

Marsh & McLennan Securities Corporation, Registered Representative, Series 7 and 63, 1998 - 2000

Adjunct Member, Committee on International Trade, Association of the Bar of the City of New York, 1998 – 2001

Harvard University Scholarship, 1990-1992

Derek Bok Teaching Award, 1993, 1994, 1995, and 1996

Allyn Young Teaching Award, 1996

Expert Reports and Testimony

Expert Report of David I. Tabak before the United States District Court for the Southern District of New York in *In re Alibaba Group Holding Limited Securities Litigation*, February 11, 2019.

Testimony before JAMS Arbitration in *John Mariani, Jr. et al. v. James Mariani et al.*, June 12, 2018.

Testimony before the Court of Chancery of the State of Delaware in *A. Schulman, Inc., et al. v. Citadel Plastics Holdings, LLC, et al.*, June 4-5, 2018.

Deposition testimony before the Court of Chancery of the State of Delaware in *A. Schulman, Inc., et al. v. Citadel Plastics Holdings, LLC, et al.*, May 14, 2018.

Deposition testimony before the United States District Court for the Southern District of New York in *In re Alibaba Group Holding Limited Securities Litigation*, April 6, 2018.

Deposition testimony before the Court of Chancery of the State of Delaware in *A. Schulman, Inc., et al. v. Citadel Plastics Holdings, LLC, et al.*, March 23, 2018.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Southern District of New York in *In re Alibaba Group Holding Limited Securities Litigation*, March 9, 2018.

Expert Report of David I. Tabak, Ph.D. before JAMS Arbitration in *John Mariani, Jr. et al. v. James Mariani et al.*, February 21, 2018.

Expert Report of David I. Tabak, Ph.D. before the Court of Chancery of the State of Delaware in *A. Schulman, Inc., et al. v. Citadel Plastics Holdings, LLC, et al.*, February 16, 2018.

Rebuttal Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Southern District of New York in *In re Vale S.A. Securities Litigation*, November 17, 2017.

Deposition testimony before the United States District Court for the Southern District of New York in *In re Vale S.A. Securities Litigation*, October 26, 2017.

Report of David I. Tabak, PhD in *Babsco Pty Ltd v. Slater & Gordon Limited*, Federal Court Proceeding VID 659 / 2017, Australia, October 26, 2017.

Deposition testimony before the Supreme Court of the State of New York, County of Westchester, in *Paraco Gas Corporation v. Ferrellgas, L.P.*, September 28, 2017.

Rebuttal Expert Report of David I. Tabak, Ph.D. before the Supreme Court of the State of New York, County of Westchester, in *Paraco Gas Corporation v. Ferrellgas, L.P.*, September 20, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Southern District of New York in *In re Vale S.A. Securities Litigation*, September 14, 2017.

Expert Report of David I. Tabak, Ph.D. before the Supreme Court of the State of New York, County of Westchester, in *Paraco Gas Corporation v. Ferrellgas, L.P.*, August 24, 2017.

Supplement to Reply Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, August 9, 2017.

Deposition Testimony before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, August 1, 2017.

Reply Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, June 15, 2017.

Sur-Reply Expert report of David I. Tabak, Ph.D. before the United States District Court for the District of New Jersey in *Bing Li et al. v. Aeterna Zentaris et al.*, May 31, 2017.

Reply Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, May 26, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of South Carolina in *Edna Selan Epstein et al. vs. World Acceptance Corporation et al.*, May 8, 2017.

Deposition Testimony before the United States District Court for the District of New Jersey in *Bing Li et al. v. Aeterna Zentaris et al.*, April 21, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, April 13, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of New Jersey in *Bing Li et al. v. Aeterna Zentaris et al.*, March 23, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of South Carolina in *Edna Selan Epstein et al. vs. World Acceptance Corporation et al.*, March 16, 2017.

Supplement to Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Northern District of California in *In re Rocket Fuel, Inc. Securities Litigation*, February 21, 2017.

Deposition Testimony before the United States District Court for the Middle District of Florida, Jackson Division in *In re Rayonier Inc. Securities Litigation*, February 8, 2017.

Expert Rebuttal Report of David I. Tabak, Ph.D. before the United States District Court for the Southern District of New York in *In re Salix Pharmaceuticals*, January 17, 2017.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Middle District of Florida, Jackson Division in *In re Rayonier Inc. Securities Litigation*, December 12, 2016.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the District of Vermont in *Louisiana Municipal Police Employees' Retirement System et al. v. Green Mountain Coffee Roasters, Inc. et al.*, December 9, 2016.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Northern District of California in *In re Rocket Fuel, Inc. Securities Litigation*, December 8, 2016.

Deposition Testimony before the United States District Court for the Southern District of New York in *In re Salix Pharmaceuticals*, November 3, 2016.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Southern District of New York in *In re Salix Pharmaceuticals*, October 7, 2016.

Rebuttal Expert Report of David Tabak, Ph.D. before the United States District Court for the District of Minnesota in *Första AP-Fonden and Danke Invest Management A/S et al. v. St. Jude Medical, Inc. et al.*, May 6, 2016.

Deposition Testimony before the United States District Court for the District of Minnesota in *Första AP-Fonden and Danke Invest Management A/S et al. v. St. Jude Medical, Inc. et al.*, February 11, 2016.

Deposition Testimony before the United States District Court for the Eastern District of Virginia in *In re Genworth Securities Litigation*, February 9, 2016.

Rebuttal Report of David Tabak, Ph.D. before the United States District Court for the Eastern District of Virginia in *In re Genworth Securities Litigation*, February 3, 2016.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Western District of Texas in *KB Partners I v. Pain Therapeutics, Inc. et al.*, January 29, 2016.

Expert Report of David Tabak, Ph.D. before the Securities and Exchange Commission in *In the Matter of Arthur F. Jacob, CPA and Innovative Business Solutions, LLC*, January 29, 2016.

Deposition Testimony before the United States District Court for the Eastern District of New York in *In re Symbol Technologies, Inc. Securities Litigation*, January 28, 2016.

Expert Report of David Tabak, Ph.D. before the United States District Court for the District of Minnesota in *Första AP-Fonden and Danke Invest Management A/S et al. v. St. Jude Medical, Inc. et al.*, December 23, 2015.

Expert Report of David I. Tabak, Ph.D. before the United States District Court for the Eastern District of Virginia in *In re Symbol Technologies, Inc. Securities Litigation*, December 11, 2015.

Expert Report of David Tabak, Ph.D. before the United States District Court for the Eastern District of Virginia in *In re Genworth Securities Litigation*, December 2, 2015.

Rebuttal Report of David Tabak, Ph.D. before the United States District Court for the District of Minnesota in *Första AP-Fonden and Danke Invest Management A/S et al. v. St. Jude Medical, Inc. et al.*, November 16, 2015.

Expert Report of David I. Tabak, Ph.D. in the United States District Court for the Western District of Texas in *KB Partners I v. Pain Therapeutics, Inc. et al.*, November 12, 2015.

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February 2019

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Exhibit 3a
Benefits of PREPA's Operational Initiatives To Be Completed Over 18 Months¹
Based on PREPA's August 1, 2018 Fiscal Plan

Operational Initiatives	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5
(1)	(2)	(3)	(4)	(5)	(6)
	----- \$ in MM -----				
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	42	112	136	306	275
Labor Operating Expense Measures	39	136	136	136	136
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 81	\$ 248	\$ 272	\$ 442	\$ 411

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The values of the PREPA measures are from pages 82 and 114-118 of the Fiscal Plan. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on. PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

Exhibit 3b
Calculation of Expense Rates In the Steady State
Based on PREPA's August 1, 2018 Fiscal Plan

Cost Components	Second Half of Fiscal Year 1 ¹	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5
(1)	(2)	(3)	(4)	(5)	(6)
Steady-State Expenses (\$ in MM) ²					
Fuel and Purchased Power	\$ 989	\$ 2,004	\$ 1,940	\$ 1,662	\$ 1,799
CILT and Subsidies	137	305	298	279	289
Total Labor	165	281	281	281	281
Total Other Operating	238	485	416	409	410
Maintenance	111	502	532	454	391
Base-Case Load Forecast (kWh) ³					
	7,372,802,631	14,390,792,303	13,998,416,886	13,634,573,734	13,290,047,065
Steady-State Rates (¢ / kWh)					
Fuel and Purchased Power	13.4 ¢	13.9 ¢	13.9 ¢	12.2 ¢	13.5 ¢
CILT and Subsidies	1.9	2.1	2.1	2.0	2.2
Total Labor	2.2	2.0	2.0	2.1	2.1
Total Other Operating	3.2	3.4	3.0	3.0	3.1
Maintenance	1.5	3.5	3.8	3.3	2.9

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

² Steady-state expenses are from page 36 of the Fiscal Plan. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

³ The base-case load forecast is from page 36 of the Fiscal Plan. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

Exhibit 3c
Benefits of PREPA's Complete Power Sector Transformation Over 5 Years ¹
Based on PREPA's August 1, 2018 Fiscal Plan

Cost Components	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5
(1)	(2)	(3)	(4)	(5)	(6)
Steady-State Rates (¢ / kWh) ³					
Purchased Power	13.4 ¢	13.9 ¢	13.9 ¢	12.2 ¢	13.5 ¢
Non-Generation Capital Expenses	1.5	3.5	3.8	3.3	2.9
Labor and Operations	5.5	5.3	5.0	5.1	5.2
CILT and Subsidies	1.9	2.1	2.1	2.0	2.2
Transformation Plan Rates (¢ / kWh) ⁴					
Purchased Power	13 ¢	13 ¢	11 ¢	10 ¢	10 ¢
Non-Generation Capital Expenses	1	0	1	1	1
Labor and Operations	5	4	4	4	4
CILT and Subsidies	2	2	2	1	2
Base-Case Load Forecast (kWh) ⁵					
	7,372,802,631	14,390,792,303	13,998,416,886	13,634,573,734	13,290,047,065
Effects of Transformation Plan Above Steady State (\$ in MM) ⁶					
Purchased Power	\$ 30	\$ 133	\$ 400	\$ 299	\$ 470
Non-Generation Capital Expenses	37	502	392	318	258
Labor and Operations	34	190	137	145	159
CILT and Subsidies	-11	17	18	143	23
Total	\$ 90	\$ 843	\$ 947	\$ 903	\$ 911

Exhibit 3c
Benefits of PREPA's Complete Power Sector Transformation Over 5 Years ¹
Based on PREPA's August 1, 2018 Fiscal Plan

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The benefits of the Transformation Plan are calculated as the difference between the steady-state rates and Transformation Plan rates.

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

³ Steady-state rates are from Exhibit 3b. The steady-state categories have been collapsed into the Transformation Plan categories in the following method:

Purchased Power includes fuel and purchased power expenses.

Non-Generation Capital Expenses include maintenance expenses.

Labor and Operations include total labor expenses and total other operating expenses.

CILT and Subsidies include CILT and subsidies.

⁴ Transformation Plan rates are from page 43 of the Fiscal Plan. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

⁵ The base-case load forecast is from page 36 of the Fiscal Plan. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

⁶ The effects of the Transformation Plan are calculated as the difference between the steady-state rates and Transformation Plan rates, multiplied by the base-case load forecast.

Exhibit 4a
Non-Insured PREPA Bonds With Largest Outstanding Balance
Yield-to-Maturity as of July 30, 2018 and January 2, 2019

No. (1)	CUSIP (2)	Bond Series ¹ (3)	Outstanding Balance (4)	Maturity Date (5)	Latest Yield-to-Maturity ² as of	
					July 30, 2018 ³ (6)	January 2, 2019 (7)
1.	74526QVX7	Power Revenue Bonds, Series XX	\$ 588,360,000	7/1/2040	12.437%	9.562%
2.	74526QA28	Power Revenue Bonds, Series 2012A	358,140,000	7/1/2042	12.729	9.620
3.	74526QXT4	Power Revenue Bonds, Series YY	320,175,000	7/1/2040	15.672	12.757
4.	74526QA69	Power Revenue Bonds, Series 2013A	307,500,000	7/1/2036	15.685	12.633
5.	74526QZS4	Power Revenue Bonds, Series EEE	217,335,000	7/1/2032	17.034	12.893
6.	74526QKX9	Power Revenue Bonds, Series TT	217,160,000	7/1/2037	12.649	9.688
7.	74526QVE9	Power Revenue Bonds, Series WW	204,370,000	7/1/2038	13.466	10.893
8.	74526QKW1	Power Revenue Bonds, Series TT	170,155,000	7/1/2032	14.031	10.973
9.	74526QZZ8	Power Revenue Bonds, Series 2012A	157,460,000	7/1/2029	15.667	12.930
10.	74526QVD1	Power Revenue Bonds, Series WW	157,440,000	7/1/2033	13.857	10.576
Weighted Average⁴					14.067%	11.023%

Notes and Sources:

Data are from Bloomberg, L.P. Table is sorted in descending order by outstanding balance.

¹ Bond series names are from the Electronic Municipal Market Access website by the Municipal Securities Rulemaking Board and official statements available at the Government Development Bank for Puerto Rico website.

² The yields-to-maturity as of July 30, 2018 and January 2, 2019 are the latest mid yield-to-maturity available on or before the measurement dates.

³ On July 31, 2018, the Ad Hoc Group of PREPA bondholders agreed to a preliminary restructuring support agreement ("RSA") with the Puerto Rico Oversight Board and PREPA. The PREPA bondholders would swap existing debt for (i) Tranche A bonds exchanged at 67.5 cents on the dollar and (ii) Tranche B bonds exchanged at 10 cents on the dollar. The Tranche B bonds will receive 100% of the excess cash flows after Tranche A is repaid. Pierog, K. "Puerto Rico utility debt restructuring deal points to path forward." Reuters. July 31, 2018. Accessed February 14, 2019. <https://www.reuters.com/article/us-usa-puertorico-prepa/puerto-rico-utility-debt-restructuring-deal-points-to-path-forward-idUSKBN1KL2RJ>

⁴ The weighted average yield-to-maturity is calculated as the average yield-to-maturity weighted by outstanding balance.

Exhibit 4b
Municipal Bond Indices
Yield-to-Maturity as of July 30, 2018 and January 2, 2019

Index (1)	Yield-to-Maturity as of	
	July 30, 2018 ¹ (2)	January 2, 2019 (3)
Sector		
S&P Municipal Bond Utility Index ²	3.32%	3.33%
S&P Municipal Bond Public Power Index ³	3.18	3.22
Rating		
S&P Municipal Bond BB+ and Below Rating Band Index ⁴	4.59%	4.73%
Geography		
S&P Municipal Bond Puerto Rico Index ⁵	5.78%	5.70%

Notes and Sources:

Yield-to-maturity data are from the S&P Dow Jones Indices website.

¹ On July 31, 2018, the Ad Hoc Group of PREPA bondholders agreed to a preliminary restructuring support agreement ("RSA") with the Puerto Rico Oversight Board and PREPA. The PREPA bondholders would swap existing debt for (i) Tranche A bonds exchanged at 67.5 cents on the dollar and (ii) Tranche B bonds exchanged at 10 cents on the dollar. The Tranche B bonds will receive 100% of the excess cash flows after Tranche A is repaid.

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² The S&P Municipal Bond Utility Index consists of bonds in the S&P Municipal Bond Index from the Public Power, Resource Recovery, Water & Sewer, and Other Utility sectors.

³ The S&P Municipal Bond Public Power Index consists of bonds in the S&P Municipal Bond Utility Index from the Public Power sector.

⁴ The S&P Municipal Bond BB+ and Below Rating Band Index includes all bonds in the S&P Municipal Bond Index that have a Standard & Poor's rating of 'BB+' and below, a Moody's rating of 'Ba1' and below, or a Fitch rating of 'BB+' and below. If a bond has multiple ratings, the lowest rating is used.

⁵ The S&P Municipal Bond Puerto Rico Index is a broad, market value-weighted index that seeks to measure the performance of bonds issued within Puerto Rico.

Exhibit 5
Long-Run Growth Rate of Puerto Rico

No. (1)	Source Title (2)	Entity/Author (3)	Date (4)	Latest Nominal Growth Rate Assuming 2% Inflation (5)
Gross Domestic Product (GDP)				
Minimum				0.22%
Maximum				1.51
Mean				0.99
Median				1.00
1.	Puerto Rico, Gross Domestic Product	Oxford Economics	Feb 2019	1.51%
2.	Puerto Rico: Growth rate of the Real Gross Domestic Product	Statista, from IMF	Oct 2018	1.22%
3.	Commonwealth of Puerto Rico Fiscal Plan	Puerto Rico Fiscal Agency and Financial Advisory Authority, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Oct 2016	0.22%
4.	Puerto Rico - A Way Forward	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jul 2015	1.00%
5.	Puerto Rico's Growth and Macroeconomic Situation and Prospects	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jun 2015	1.00%

Exhibit 5
Long-Run Growth Rate of Puerto Rico

No.	Source Title	Entity/Author	Date	Latest Nominal Growth Rate Assuming 2% Inflation
(1)	(2)	(3)	(4)	(5)
Gross National Product (GNP)				
Minimum				0.14%
Maximum				4.50
Mean				2.37
Median				2.13
6.	Puerto Rico Integrated Resource Plan 2018-2019	Siemens Industry	Feb 2019	2.05%
7.	New Fiscal Plan for Puerto Rico - Restoring Growth and Prosperity	Financial Oversight and Management Board for Puerto Rico	Oct 2018	2.20%
8.	Fiscal Plan for Puerto Rico	Puerto Rico Fiscal Agency and Financial Advisory Authority	Mar 2017	2.60%
9.	Fiscal Plan: Revised Baseline Projections	Puerto Rico Fiscal Agency and Financial Advisory Authority, and Commonwealth of Puerto Rico	Dec 2016	0.14%
10.	Bonistas del Patio Forum - Puerto Rico's Fiscal and Economic Crisis	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Jun 2016	4.50%
11.	Puerto Rico Restructuring Proposal	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Feb 2016	2.00%
12.	Puerto Rico Fiscal and Economic Growth Plan - Update Presentation	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Jan 2016	4.50%
13.	Puerto Rico - A Way Forward	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jul 2015	0.98%

Exhibit 5
Long-Run Growth Rate of Puerto Rico

No.	Source Title	Entity/Author	Date	Latest Nominal Growth Rate Assuming 2% Inflation
(1)	(2)	(3)	(4)	(5)

Notes and Sources:

Data are from the February 12, 2019 Puerto Rico Integrated Resource Plan, the October 23, 2018 Fiscal Plan for Puerto Rico, investor presentations available on the Government Development Bank for Puerto Rico website, Oxford Economics, and Statista.

Reported nominal GDP/GNP data were prioritized over real GDP/GNP data.

Exhibit 5
Long-Run Growth Rate of Puerto Rico

<u>No.</u> <u>(1)</u>	<u>Source Title</u> <u>(2)</u>	<u>Entity/Author</u> <u>(3)</u>	<u>Date</u> <u>(4)</u>	<u>Stated Growth Rate</u> <u>(5)</u>	<u>Latest Nominal Growth Rate Assuming 2% Inflation</u> <u>(6)</u>	<u>Page</u> <u>(7)</u>
Gross Domestic Product (GDP)						
1.	Puerto Rico, Gross Domestic Product	Oxford Economics	Feb 2019	Nominal GDP Growth: 2017: -1.67% 2018: -3.07% 2019: 4.04% 2020: 3.53% 2021: 2.51% ... 2045: 1.55% 2046: 1.48% 2047: 1.49% 2048: 1.50% 2049: 1.51%	1.51%	n/a
2.	Puerto Rico: Growth rate of the Real Gross Domestic Product	Statista, from IMF	Oct 2018	Real GDP Growth: 2018: -2.33% 2019: -1.15% 2020: -0.69% 2021: -0.78% 2022: -0.78%	1.22%	n/a
3.	Commonwealth of Puerto Rico Fiscal Plan	Puerto Rico Fiscal Agency and Financial Advisory Authority, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Oct 2016	Nominal GDP Growth: 2018: 0.35% 2019: 0.05% 2020: 0.01% 2021: -0.02% 2022: -0.01% 2023: 0.01% 2024: 0.05% 2025: 0.12% 2026: 0.22%	0.22%	93
4.	Puerto Rico - A Way Forward	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jul 2015	"The baseline scenario thus assumes that intermittent access to liquidity forestalls an overt financing crisis, and that real GDP growth somehow remains around -1%"	1.00%	14

Exhibit 5
Long-Run Growth Rate of Puerto Rico

<u>No.</u> <u>(1)</u>	<u>Source Title</u> <u>(2)</u>	<u>Entity/Author</u> <u>(3)</u>	<u>Date</u> <u>(4)</u>	<u>Stated Growth Rate</u> <u>(5)</u>	<u>Latest Nominal Growth Rate Assuming 2% Inflation</u> <u>(6)</u>	<u>Page</u> <u>(7)</u>
5.	Puerto Rico's Growth and Macroeconomic Situation and Prospects	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jun 2015	"We do not use a forced crisis as our base line, but instead posit that real GDP growth remains very low – at about minus 1 percent. This is NOT a pessimistic base line. We also assume 2 percent inflation, which may be high, but is the target rate of the Federal Reserve."	1.00%	17
Gross National Product (GNP)						
6.	Puerto Rico Integrated Resource Plan 2018-2019	Siemens Industry	Feb 2019	Macroeconomic Long Term Forecast GNP (Real Millions US dollars): 2018: 5,251 2019: 5,573 2020: 5,632 ... 2036: 5,847 2037: 5,846 2038: 5,849	2.05% Real growth rate = (5,849/5,846)-1	3-8
7.	New Fiscal Plan for Puerto Rico - Restoring Growth and Prosperity	Financial Oversight and Management Board for Puerto Rico	Oct 2018	"Real growth is 0.20% from FY2044 onward. Population is estimated to steadily decline at an average rate of 1.12% from 2019-2023, reaching a ~1% annual decline in the long term. Inflation settles at a run-rate of 2.00% as it is expected to converge to mainland forecasts."	2.20%	31
8.	Fiscal Plan for Puerto Rico	Puerto Rico Fiscal Agency and Financial Advisory Authority	Mar 2017	Nominal GNP Growth: 2017: -2.2% 2018: -2.8% 2019: -2.4% 2020: -0.5% 2021: -0.4% 2022: 0.3% 2023: 1.0% 2024: 1.6% 2025: 2.1% 2026: 2.6%	2.60%	10

Exhibit 5
Long-Run Growth Rate of Puerto Rico

No. (1)	Source Title (2)	Entity/Author (3)	Date (4)	Stated Growth Rate (5)	Latest Nominal Growth Rate Assuming 2% Inflation (6)	Page (7)
9.	Fiscal Plan: Revised Baseline Projections	Puerto Rico Fiscal Agency and Financial Advisory Authority, and Commonwealth of Puerto Rico	Dec 2016	Nominal GNP Growth: 2018: -17.25% 2019: -2.29% 2020: 4.02% 2021: 3.23% 2022: 3.50% 2023: 0.76% 2024: 0.12% 2025: 0.15% 2026: 0.14%	0.14%	5
10.	Bonistas del Patio Forum - Puerto Rico's Fiscal and Economic Crisis	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Jun 2016	"The baseline FEGP projections assumes 1.0% nominal growth per year (-1.0% real, 2.0% inflation) until FY 2018, at which point the Commonwealth experiences flat real economic growth (2.0% nominal), before gradually rising to a long-term nominal rate of 4.5% (2.5% real) • This long-term growth rate, while achievable and inline with the estimates in the Krueger Report for both long-term U.S. and Puerto Rico economic growth, is optimistic given that Puerto Rico's real GNP growth has been below that of the U.S. every year since 2001"	4.50%	6
11.	Puerto Rico Restructuring Proposal	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Feb 2016	"Base Bond debt service and resulting financing surplus amounts before growth were sized assuming a continuation of the current percentage of healthcare funding from the U.S. Federal Government (i.e., a replacement or continuation of ACA funding), and 0% real GNP growth and 2% inflation • This differs from the base line assumptions (before measures) in the FEGP, which assumed -1% real GNP growth and 2% inflation • The benefit from economic growth reflects the high growth case as in the FEGP (2.5% long-term real GNP growth, 2% inflation)"	2.00%	19
12.	Puerto Rico Fiscal and Economic Growth Plan - Update Presentation	Working Group for the Fiscal and Economic Recovery of Puerto Rico, Commonwealth of Puerto Rico, and Government Development Bank for Puerto Rico	Jan 2016	"• The new projections for the benefit of economic growth assume FY 2017 continues the -1.0% real GNP growth decline, flattens in FY 2018, and reaches 2.0% by FY 2021 • Beyond FY 2021, the new projections assume real GNP growth to be equal to the long-term growth rate estimated in the Krueger Report, which in turn is based on the authors of that report's review of IMF estimates of potential growth in the United States in the previous decade (3%) and current projections of growth for the U.S. economy in the absence of needed structural reforms (2%). The projections going forward from FY 2021 are the midpoint (2.5%) of the aforementioned range"	4.50%	18

Exhibit 5
Long-Run Growth Rate of Puerto Rico

<u>No.</u> (1)	<u>Source Title</u> (2)	<u>Entity/Author</u> (3)	<u>Date</u> (4)	<u>Stated Growth Rate</u> (5)	<u>Latest Nominal Growth Rate Assuming 2% Inflation</u> (6)	<u>Page</u> (7)
13.	Puerto Rico - A Way Forward	Anne O. Krueger, Ranjit Teja, and Andrew Wolfe	Jul 2015	Nominal GNP (millions of dollars): 2018: 71,249 2019: 71,947 2020: 72,652 2021: 73,364 2022: 74,083 2023: 74,809 2024: 75,542 2025: 76,283	0.98% Nominal growth rate = (76,283/71,249)-1	15

Notes and Sources:

Data are from the February 12, 2019 Puerto Rico Integrated Resource Plan, the October 23, 2018 Fiscal Plan for Puerto Rico, investor presentations available on the Government Development Bank for Puerto Rico website, Oxford Economics, and Statista.
Reported nominal GDP/GNP data were prioritized over real GDP/GNP data.

Exhibit 6a
Present Value Analysis of Benefits of Independent and Professional Management of PREPA
Discount Rate Based on PREPA Bonds Prior to the July 31, 2018 Preliminary RSA¹

PREPA Initiatives and Transformation	Present Value of Cost Savings as of January 1 of Fiscal Year 1							Fiscal Year 1 to Terminal Value
	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5	Terminal Value ³	First 18 Months (Second Half of Fiscal Year 1 to End of Fiscal Year 2)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (2) + (3)	(9) = sum[(2):(7)]
----- \$ in MM -----								
Operational Initiatives Benefits Under Steady State⁴								
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	41	98	104	206	162	1,153	139	1,765
Labor Operating Expense Measures	38	119	104	92	80	571	157	1,004
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 79	\$ 217	\$ 209	\$ 298	\$ 242	\$ 1,724	\$ 296	\$ 2,769
Transformation Plan Effects Above Steady State⁵								
Purchased Power	\$ 29	\$ 117	\$ 308	\$ 201	\$ 278	\$ 1,974	\$ 146	\$ 2,906
Non-Generation Capital Expenses	36	440	301	214	152	1,084	476	2,228
Labor and Operations	33	167	105	97	94	669	200	1,166
CILT and Subsidies	-11	15	14	96	14	97	4	226
Subtotal	\$ 87	\$ 739	\$ 728	\$ 609	\$ 538	\$ 3,824	\$ 826	\$ 6,525
Total Cost Savings of Operational Initiatives and Transformation Plan	\$ 166	\$ 956	\$ 937	\$ 907	\$ 780	\$ 5,548	\$ 1,122	\$ 9,294

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The discount rate of 14.067% is the weighted average yield to maturity of the PREPA bonds listed in Exhibit 4a, as of July 30, 2018.

On July 31, 2018, the Ad Hoc Group of PREPA bondholders agreed to a preliminary restructuring support agreement ("RSA") with the Puerto Rico Oversight Board and PREPA. The PREPA bondholders would swap existing debt for (i) Tranche A bonds exchanged at 67.5 cents on the dollar and (ii) Tranche B bonds exchanged at 10 cents on the dollar. The Tranche B bonds will receive 100% of the excess cash flows after Tranche A is repaid.

Pierog, K. "Puerto Rico utility debt restructuring deal points to path forward." Reuters. July 31, 2018. Accessed February 14, 2019.

<https://www.reuters.com/article/us-usa-puertorico-prepa/puerto-rico-utility-debt-restructuring-deal-points-to-path-forward-idUSKBN1KL2RJ>

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

³ The terminal value growth rate is assumed to be 0%.

⁴ The values of the PREPA measures are from Exhibit 3a.

PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

⁵ The values of the Transformation Plan effects are from Exhibit 3c.

Exhibit 6b
Present Value Analysis of Benefits of Independent and Professional Management of PREPA
Discount Rate Based on Current Yield on the S&P Municipal Bond Puerto Rico Index ¹

	Present Value of Cost Savings as of January 1 of Fiscal Year 1							
	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5	Terminal Value ³	First 18 Months (Second Half of Fiscal Year 1 to End of Fiscal Year 2) = (2) + (3)	Fiscal Year 1 to Terminal Value = sum[(2):(7)]
PREPA Initiatives and Transformation (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	----- \$ in MM -----							
Operational Initiatives Benefits Under Steady State ⁴								
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	42	106	122	259	220	3,859	148	4,608
Labor Operating Expense Measures	38	129	122	115	109	1,910	167	2,423
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 80	\$ 235	\$ 243	\$ 374	\$ 329	\$ 5,770	\$ 315	\$ 7,031
Transformation Plan Effects Above Steady State ⁵								
Purchased Power	\$ 30	\$ 126	\$ 358	\$ 253	\$ 377	\$ 6,606	\$ 156	\$ 7,749
Non-Generation Capital Expenses	37	475	351	269	207	3,628	512	4,966
Labor and Operations	33	180	123	122	128	2,240	213	2,827
CILT and Subsidies	-11	16	16	121	19	326	5	487
Subtotal	\$ 89	\$ 797	\$ 848	\$ 765	\$ 730	\$ 12,800	\$ 886	\$ 16,028
Total Cost Savings of Operational Initiatives and Transformation Plan	\$ 169	\$ 1,032	\$ 1,091	\$ 1,139	\$ 1,058	\$ 18,569	\$ 1,201	\$ 23,059

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The discount rate of 5.70% is the yield to maturity of the S&P Municipal Bond Puerto Rico Index as listed in Exhibit 4b, as of January 2, 2019.

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year. Fiscal Year 1 corresponds with fiscal year 2019 of the Fiscal Plan and so on.

³ The terminal value growth rate is assumed to be 0%.

⁴ The values of the PREPA measures are from Exhibit 3a.

PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

⁵ The values of the Transformation Plan effects are from Exhibit 3c.

Exhibit 7
Benefits of Independent and Professional Management of PREPA
If the Transformation Plan Is Delayed 18 Months

PREPA Initiatives and Transformation (1)	Undiscounted Cost Savings as of January 1 of Fiscal Year 1				
	Second Half of Fiscal Year 1 ¹	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5
	(2)	(3)	(4)	(5)	(6)
	----- \$ in MM -----				
Operational Initiatives Benefits Under Steady State ²					
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	42	112	136	306	275
Labor Operating Expense Measures	39	136	136	136	136
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 81	\$ 248	\$ 272	\$ 442	\$ 411
Transformation Plan Effects Above Steady State ³					
Purchased Power	n/a	n/a	\$ 97	\$ 267	\$ 349
Non-Generation Capital Expenses	n/a	n/a	288	447	355
Labor and Operations	n/a	n/a	129	164	141
CILT and Subsidies	n/a	n/a	-2	18	80
Subtotal	n/a	n/a	\$ 512	\$ 895	\$ 925
Total Cost Savings of Operational Initiatives and Transformation Plan	\$ 81	\$ 248	\$ 783	\$ 1,337	\$ 1,336

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

² The values of the PREPA measures are from Exhibit 3a.

PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

³ The values of the Transformation Plan effects are from Exhibit 3c and are delayed 18 months.

The values of the Transformation Plan effects extend beyond Fiscal Year 5 and are not shown in the exhibit.

Exhibit 8a
Present Value Analysis of Benefits of Independent and Professional Management of PREPA
If the Transformation Plan Is Delayed 18 Months
Discount Rate Based on PREPA Bonds Prior to the July 31, 2018 Preliminary RSA ¹

PREPA Initiatives and Transformation (1)	Present Value of Cost Savings as of January 1 of Fiscal Year 1							
	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5	Terminal Value ³	First 18 Months (Second Half of Fiscal Year 1 to End of Fiscal Year 2)	Fiscal Year 1 to Terminal Value
	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (2) + (3)	(9) = sum[(2):(7)]
----- \$ in MM -----								
Operational Initiatives Benefits Under Steady State ⁴								
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	41	98	104	206	162	1,153	139	1,765
Labor Operating Expense Measures	38	119	104	92	80	571	157	1,004
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 79	\$ 217	\$ 209	\$ 298	\$ 242	\$ 1,724	\$ 296	\$ 2,769
Transformation Plan Effects Above Steady State ⁵								
Purchased Power	n/a	n/a	\$ 74	\$ 180	\$ 206	\$ 1,929	\$ 0	\$ 2,390
Non-Generation Capital Expenses	n/a	n/a	222	301	210	1,099	0	1,832
Labor and Operations	n/a	n/a	99	110	83	666	0	958
CILT and Subsidies	n/a	n/a	-2	12	47	128	0	186
Subtotal	n/a	n/a	\$ 393	\$ 603	\$ 547	\$ 3,822	\$ 0	\$ 5,365
Total Cost Savings of Operational Initiatives and Transformation Plan	\$ 79	\$ 217	\$ 602	\$ 901	\$ 789	\$ 5,546	\$ 296	\$ 8,134

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018

¹ The discount rate of 14.067% is the weighted average yield to maturity of the PREPA bonds listed in Exhibit 4a, as of July 30, 2018

On July 31, 2018, the Ad Hoc Group of PREPA bondholders agreed to a preliminary restructuring support agreement ("RSA") with the Puerto Rico Oversight Board and PREPA. The PREPA bondholders would swap existing debt for (i) Tranche A bonds exchanged at 67.5 cents on the dollar and (ii) Tranche B bonds exchanged at 10 cents on the dollar. The Tranche B bonds will receive 100% of the excess cash flows after Tranche A is repaid.

Pierog, K. "Puerto Rico utility debt restructuring deal points to path forward." Reuters. July 31, 2018. Accessed February 14, 2019.

<https://www.reuters.com/article/us-usa-puertorico-prepa/puerto-rico-utility-debt-restructuring-deal-points-to-path-forward-idUSKBN1KL2RJ>

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

³ The terminal value growth rate is assumed to be 0%.

The terminal value for Transformation Plan effects above steady state includes the final 18 months of benefits from Exhibit 3c.

⁴ The values of the PREPA measures are from Exhibit 3a.

PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

⁵ The values of the Transformation Plan effects are from Exhibit 3c and are delayed 18 months.

Exhibit 8b

**Present Value Analysis of Benefits of Independent and Professional Management of PREPA
If the Transformation Plan Is Delayed 18 Months
Discount Rate Based on Current Yield on the S&P Municipal Bond Puerto Rico Index ¹**

PREPA Initiatives and Transformation (1)	Present Value of Cost Savings as of January 1 of Fiscal Year 1							
	Second Half of Fiscal Year 1 ²	Fiscal Year 2	Fiscal Year 3	Fiscal Year 4	Fiscal Year 5	Terminal Value ³	First 18 Months (Second Half of Fiscal Year 1 to End of Fiscal Year 2)	Fiscal Year 1 to Terminal Value
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
							= (2) + (3)	= sum[(2):(7)]
----- \$ in MM -----								
Operational Initiatives Benefits Under Steady State ⁴								
Revenue Measures	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD	\$ TBD
Fuel and Purchased Power Measures	42	106	122	259	220	3,859	148	4,608
Labor Operating Expense Measures	38	129	122	115	109	1,910	167	2,423
Non-Labor/Other Operating Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Maintenance Expense Measures	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Subtotal	\$ 80	\$ 235	\$ 243	\$ 374	\$ 329	\$ 5,770	\$ 315	\$ 7,031
Transformation Plan Effects Above Steady State ⁵								
Purchased Power	n/a	n/a	\$ 86	\$ 226	\$ 280	\$ 6,541	\$ 0	\$ 7,133
Non-Generation Capital Expenses	n/a	n/a	258	379	284	3,650	0	4,571
Labor and Operations	n/a	n/a	116	139	113	2,235	0	2,602
CILT and Subsidies	n/a	n/a	-2	15	64	371	0	448
Subtotal	n/a	n/a	\$ 458	\$ 758	\$ 741	\$ 12,797	\$ 0	\$ 14,754
Total Cost Savings of Operational Initiatives and Transformation Plan	\$ 80	\$ 235	\$ 701	\$ 1,132	\$ 1,070	\$ 18,566	\$ 315	\$ 21,785

Notes and Sources:

Data are from the Puerto Rico Electric Power Authority Fiscal Plan - August 1, 2018.

¹ The discount rate of 5.70% is the yield to maturity of the S&P Municipal Bond Puerto Rico Index as listed in Exhibit 4b, as of January 2, 2019.

² The second half of Fiscal Year 1 includes the months January to June. PREPA's fiscal year begins in July and ends in June of the next year.

³ The terminal value growth rate is assumed to be 0%.

The terminal value for Transformation Plan effects above steady state includes the final 18 months of benefits from Exhibit 3c.

⁴ The values of the PREPA measures are from Exhibit 3a.

PREPA states that the estimates of the impact of the Operational Initiatives for Revenue, Non-Labor/Other Opex, and Maintenance Expense are to be completed by fiscal year 2019 Q2.

⁵ The values of the Transformation Plan effects are from Exhibit 3c and are delayed 18 months.